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AUTHOR	Needham, Robbie Lee
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ABSTRACT

Communications technologies have the potential to transform the educational process. In the community college context, these technologies have the power to change the the roles of faculty. On one hand, these changes might mean a reduction in the number and status of teachers. On the other hand, communications technologies may afford teachers greater opportunities for role differentiation and specialization. Another change made possible by the introduction of new technologies has been an upset of traditional power relationships in the learning process, with teachers relinquishing authority and students assuming more control over their own learning. Communications technologies also allow for much greater individualization of learning, permitting students to progress at their own speed and freeing teachers from repetitious analysis and prescription. As educators realize the potential of computers for innovation in education, many possibilities for enhancing student learning arise: (1) computers can create realistic models and involve students in real-world computer applications; (2) throughout the college, students are using the computer as a tool to analyze data, draft and revise sketches, perform laboratory experiments, or draft and revise reports; and (3) individualized instruction is available via computers in public libraries, video outlets, and electronic universities, diffusing higher education's monopoly on learning beyond high school. A final area in which communications technologies can affect the educational process lies in their potential for furthering the professional development of faculty. Realizing this potential requires that administrators and policymakers help faculty develop new skills through planning and allocating adequate resources for computer skills and courseware development. Perhaps technology's primary gift to community college faculty is the demand that they look again at the essentials of teaching and learning. (RO)

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Robbie Lee Needham
Coordinator of Special Projects
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As the use of technologies increases in all phases of our society, community college faculty are bombarded by buzzwords: computers, computer-based education, broadcast television, satellites, point-to-point microwave, telecomputer networks, and interactive videodiscs.

Faculty are frustrated. There is an expanding, somewhat unfamiliar vocabulary. There are expectations for greater productivity on the part of faculty, expectations which come at times of stabilizing or declining resources. New technologies are often touted as THE answer to classroom problems.

A growing number of community college instructors have embraced computer technologies enthusiastically and have been effective in incorporating them into their courses, while others have flatly rejected them. Faculty are still uncertain about the communications technologies as partners in instruction (Needham, 1983), and they are asking, "Should I fear these new technologies in education?"

In some ways the answer is "yes," but more strongly, the answer is "no."

Communications Technologies and the Teaching Profession

Communications technologies have the potential to transform the educational process. They also have the power to change the roles of faculty in community colleges, even to the point of reducing the number and status of teachers. Although the transformation is not occurring overnight, the

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likelihood of it strikes fear in the hearts of some faculty. On the other hand, some faculty approach communications technologies openly, expectantly, impatiently, wishing that progress in the direction of their ideals for improving education could occur more rapidly. In addition, many faculty see in communications technologies an opportunity for greater role differentiation and specialization (Cohen, 1969). For example, more teachers might become actively involved as instructional designers while others might develop specializations in assessment, in small group facilitation, in computer programming, in media development, in crosscultural education, in distance learning. As new technologies have the potential for spreading learning more pervasively throughout our culture, there is the likely possibility of a greater need for faculty as educational specialists. Thus the answer to the question, "Are communications technologies a threat to faculty?," is more "no" than "yes."

Teacher - Learner Relationships

The introduction of new technologies into the teaching and learning process initiates a change in power relationships. These technologies give students more control over their own learning. According to Shirley C. Smith, Drexel University, "the locus of control for the educational process is shifting from professors to students. Students now have more power to experiment and play 'what if' games" (Benderson, 1985, p. 14). In fact, some technologies give students total control over their learning. For example, a freshman level mathematics course on an interactive videodisc can present the material to be learned, drill and test the student, record responses, and compute the grade without the assistance of a teacher. Such a course can be made available to students independently in learning resource centers, public libraries, or in the learner's own home. Thus, technologies have the potential of upsetting traditional power relationships in the learning process, a process in which teachers have traditionally held authority and control. On the other hand, the technologies have the potential for freeing faculty from many roles that they often describe as dreary or unprofessional, such as drill, repetition, and other learning situations that require systematic responses. Moreover, computers already play a variety of roles in recordkeeping, which aid faculty in course management.

Communications technologies in education allow for much greater individualization of learning. Students are able to progress at their own speed, start learning when they are motivated and stop when they are saturated. Since community college faculty have long sought to individualize instruction, communications technologies are a real asset toward that objective. Moreover, these technologies allow the instructor to individualize instruction without having to make individual prescriptions for each student in each class during each term. Material presented on well-designed software, that which is branching rather than linear, can free the instructor of repetitious analysis and prescription and produce opportunities for more creative tasks such as assisting students as they are following their learning prescriptions, defining and measuring the outcomes of education, or structuring learning environments. Should teachers fear communications technologies in education? The answer may be "yes" for some, but it should be "no" for most community college faculty.

Computer Technologies

Because computers more than other communications technologies are being incorporated into education and because they are often being used for drill, practice and for providing information, some teachers express concern that computer-based education stresses the functions of the left brain, the rote response. This is true in the drill and practice functions. However, those functions are being used less and less as educators realize the potential of computers for innovation in education. Used with applications programs such as spreadsheets, data bases, and wordprocessing, the computer can create realistic models and involve students in real-world computer applications. With this focus on applications programs, computer technologies are being used to support learning across the curriculum rather than confining it to data processing and engineering technology. Students throughout the college are using the computer as a tool to analyze data, draft and revise sketches, perform laboratory experiments, or draft and revise reports. With this potential for enhancing student learning, faculty should feel less threatened by the computer in education.

Reducing the Threat

The development of communications technlogies and their application to learning has brought about the diffusion of higher education's monopoly on formal learning beyond high school. Not so long ago, a learner had to enroll in a course in order to learn how to write better business letters, compute more accurately, or read more rapidly. Now, however, with individualized instruction available in colleges, in public libraries, and in video outlets, the learning environment is changing. Nudging that change is the development of many forms of distance learning, including electronic universities. All of these allow students to learn within the settings of their own choosing and to acquire credentials for their achievements, if they so desire. The outcome for formal postsecondary education could be a vast constriction of current providers. On the other hand, community colleges, and other components of the formal learning system, can benefit because research has repeatedly shown that the more education people have, the more likely they are to participate in further education (Cross, 1981).

Faculty may feel less threatened by technologies once they see their potential for furthering professional development. If colleges are going to expect productivity gains as a result of the incorporation of communication technologies into the learning process, administrators and policy makers must help faculty develop new skills. It is important for administrators and faculty to remember that the biggest expense involved in incorporating new technologies into any process is the expense for staff training. It is not uncommon for 75 percent of the cost of such a conversion, if it is successful, to be related to staff development. People who are trained merely to apply a new technology to their specific jobs do not learn enough about it to go beyond the current application. And it is in the potential for future applications where productivity gains can be the highest.

Roger Kershaw, the director of Educational Testing Service Technology Research Group, worries that if administrators are not willing to adequately

support, both with release time and other resources, the incorporation of communications technologies into education "They will go the way of such failed innovations as the teaching machine" (Benderson, 1985, p. 9). Or as George Bonham cautions, "They will come dangerously close to education's earlier failed flirtations with television and computer-aided instruction" (Bonham, 1983).

Thus, if faculty and communications technologies are to become true partners in community college learning endeavors, administrators and policy makers must be fully committed to staff development. This means planning and allocating adequate resources for courseware development and/or review, plus the development of the new skills required to incorporate the technologies into course and to transform the learning environment to one in which technology enhances learning. Leadership is required to change faculty from conveyors of information to directors of learning environments or to any of the specialized functions mentioned earlier.

Keeping Priorities Clear

To the question, "Should faculty fear the use of communications technologies in education?," the answer is most likely "no" when faculty see technology's potential for stimulating them to focus on essentials: What should students learn? How can learning be assessed? What must the curriculum contain? These are the questions central to education. The process of incorporating technology into education should encourage teachers to ask these questions again and again. Technologies offer opportunities for new strategies to implement the answers. Technologies, however, will not take the place of professionals asking the critical questions nor will anything developed for technologies be really successful until core questions are confronted first. Perhaps technology's primary gift to community college faculty is the demand that they look again at the essentials of teaching and learning.

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